Beware of the "Bronchocele," Particularly in Patients with a History or Risk Factors for a Mucinous Carcinoma

A Response to the Article "Resection of a Solitary Pulmonary Metastasis from Prostatic Adenocarcinoma Misdiagnosed as a Bronchocele: Usefulness of 18F-Choline and 18F-FDG PET/CT" by Calais et al.

To the Editor:

We read, with interest, the article "Resection of a Solitary Pulmonary Metastasis from Prostatic Adenocarcinoma Misdiagnosed as a Bronchocele: Usefulness of 18F-Choline and 18F-FDG PET/CT" by Calais et al.[1]. We agree entirely that there is a valuable learning point from this case and would like to share a recent case from our institution to reinforce this lesson.

An 84-year-old female patient with a previous colorectal mucinous adenocarcinoma, treated with surgical resection, presented with a cough. Subsequent chest radiograph (CXR) and computer tomography (CT) scan confirmed the presence of a lobulated and elongated lesion (finger in glove sign) in the right middle lobe consistent with a bronchocele (Fig. 1). The patient went on to have an 18-F-fluorodeoxyglucose (FDG) positron emission computed tomography (PET)-CT scan, which demonstrated no FDG uptake within the lesion, again consistent with a bronchocele (Fig. 2). Bronchoscopy demonstrated an intraluminal obstruction of the right middle lobe by solid, green-yellow tissue. The tissue could not be cleared with suction or by application of saline. Endobronchial biopsies yielded large clumps of tissue and, to our surprise, histopathological analysis revealed mucin-secreting tumor cells. The tumor demonstrated strong immunopositivity for CK20 and CDX2, compatible with a diagnosis of metastatic mucinous colorectal adenocarcinoma. The patient went on to have a right middle lobectomy. The histology from the primary colorectal tumor was reviewed and found to be morphologically and immunohistochemically similar to the resected lung lesion.

In both cases, it would be understandable to take reassurance from the radiological appearances of these two benign-appearing but ultimately malignant solitary metastatic deposits. Both were thought be a bronchocele because of their radiological appearance. Furthermore, in our case, the lesion in question showed no FDG uptake, again in favor of the radiological hypothesis of a benign bronchocele. However, in the context of mucinous carcinomas, we must be careful with the interpretation of FDG avidity, which has a high false-negative rate[2]; an unsurprising fact given that FDG avidity is negatively correlated with degree of mucin within a tumor.[3]

We also recognize that this is as an unusual presentation of pulmonary metastases from colorectal carcinoma. The common clinical-radiological scenario is parenchymal nodules. Both endobronchial metastases and a "pseudo-bronchocele" are much less frequently encountered.[4,5]

The ^{18}F-choline PET-CT described in the report by Calais et al. is not a test we are familiar with in the United Kingdom. The biochemical mechanisms utilized by this test, described elegantly by the authors, could overcome the problems of FDG PET-CT in cases such as lepidic adenocarcinoma of the lung. We would like to ask the authors if this technique could add value to the assessment of possible mucinous tumors and if they see a future role for ^{18}F-choline PET-CT in the management of lung cancer.

In summary, we would advocate a high index of suspicion of malignancy in pulmonary lesions thought to be a bronchocele radiologically, where there is history or risk factors for a mucinous carcinoma.

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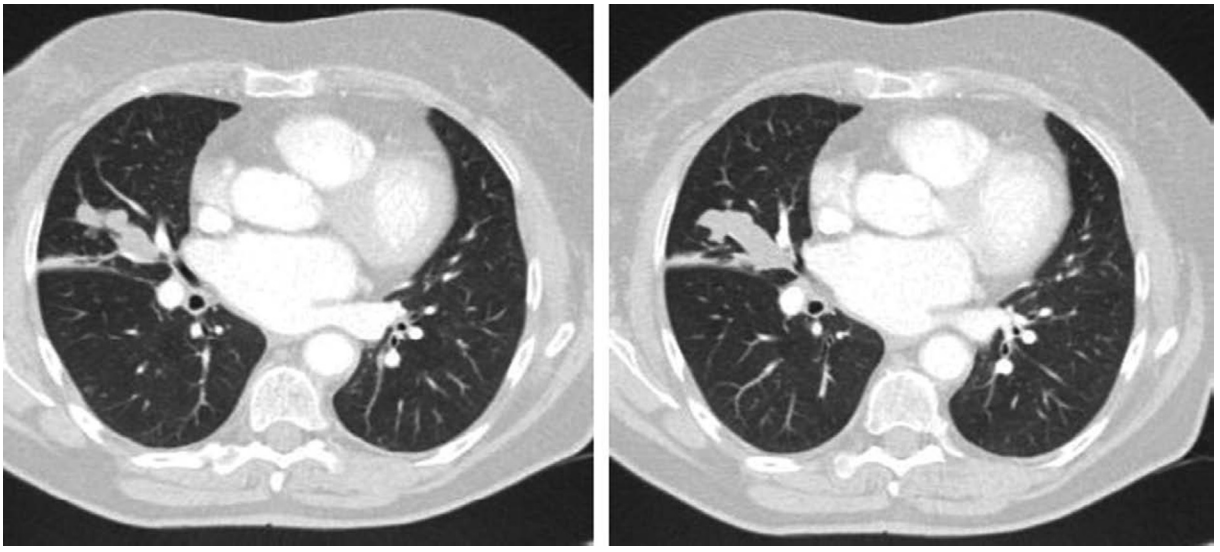

FIGURE 1. Computed tomography of the thorax demonstrating an intraluminal, elongated opacity in the lateral segment of the right middle lobe.

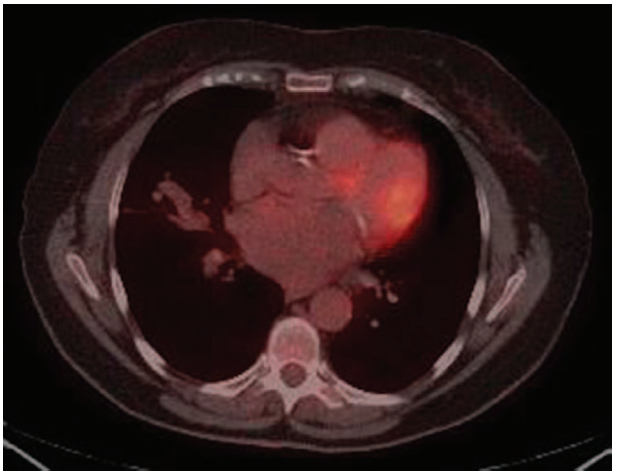

FIGURE 2. 18-F-Fluorodeoxyglucose (FDG) positron emission tomography-computed tomography demonstrating no FDG uptake within the right middle lobe lesion.